

NITRIC OXIDE, NO. *Carabus serratus* became unable to crawl the moment it was put in this gas, and in about ten seconds was perfectly motionless. It never recovered, although removed at the end of fifteen seconds. *Oniscus* never survived an immersion of forty to sixty seconds in this gas. All insects killed by nitric oxide became rigid, while the joints of those killed by carbonic dioxide were not stiffened.

It is quite evident from the preceding experiments that carbonic dioxide, alone or mixed with air, is poisonous to insects. Carbonic monoxide mixed with air was not tested, but probably is not poisonous, acting only by suffocation. This is the more likely on account of the similarity of its effects to those produced by hydrogen, which is not poisonous, as is shown by insects living in a mixture in which it was substituted for the nitrogen of the air. Again it is probable that carbonic monoxide, which poisons vertebrates by solidification of the red blood corpuscles and rendering them incapable of performing their work, would have no effect, except that of suffocation, on insects, whose respiration is performed by direct contact of the air with the muscles, without the intervention of blood corpuscles. Oxygen seems only to stimulate insects, although in some cases it may produce death in a short time. Nitric oxide evidently acts as a quick poison, from the action of which insects do not recover.

Geo. Dimmock.

Proceedings of the Club.

§ 13. APPENDAGES HOMOLOGOUS WITH LEGS. When exhibiting a specimen of *Dictyopteryx signata*, which has two pairs of gills on the under side of the head, DR. HAGEN said that Pietet figures the head of *Nemura cinerea*, which has two pairs of gills on the under side of the head and three on the thorax. Dr. Hagen considers the first two to represent or to be the remains of the legs belonging to the rings of the head. He said further, in connection with Dr. Packard's remarks, given below, that the female organs of Odonata are pleural (as are the legs); in Neuroptera and Hemiptera the female parts

are homologous with the sting of the bee ; the cerci are connected with gills. (Jan. 9, 1874.)

DR. A. S. PACKARD, JR., in making a communication, since published by him in the American Naturalist, vol. viii [see PSYCHE, vol. i, Rec., No. 266], said he had shown that the spring of *Isotoma* is a pair of abdominal legs, homologous with the bee's sting. As hexapod insects thus have (morphologically) abdominal feet, they are not to be separated from the spiders. (Jan. 9, 1874.)

§ 14. MIMICRY. Referring to the distinction between the epidermic and hypodermic colors of insects, which he had pointed out in the American Naturalist, vol. vi, p. 388-393, DR. HAGEN said that all colors which are concerned in mimicry are hypodermic, these being the only colors which are under the control of the insect. The markings upon the elytra of *Cicindela* are hypodermic. (Mar. 13, 1874.)

§ 15. TACHINA PARASITIC ON PHASMIDÆ. MR. C. R. OSTEN SACKEN mentioned that Mr. H. L. Moody had raised two specimens of a *Tachina* from *Diapheromera femorata*, in the abdomen of which they were parasitic, and said that Liebow had found four or five larvæ in the abdomen of *Bacillus Rossii*. (April 9, 1875.)

§ 16. IS *ALETIA ARGILLACEA* WINTER-KILLED EVERY YEAR? MR. H. K. MORRISON said he did not think it was true that the imago of the Cotton-worm (*Aletia argillacea*) was killed every winter by the cold, and that the loss was made up annually by the immigration of other individuals from South America. DR. H. A. HAGEN joined in expressing his disbelief of this supposition, and said that Mr. Boll had obtained specimens in Texas. (May 14, 1875.)

§ 17. FINDING OF COLEOPTERA. MR. E. P. AUSTIN said he had captured specimens of *Clivina elongata* and of *Oxytelus rugosus* at Cambridge commonly lately. (May 14, 1875.)

§ 18. MOULTING OF THE LARVA OF *PLEOCOMA*. MR. C. R. OSTEN SACKEN exhibited a larva of the coleopterous genus *Pleocomia*, communicated to him by Dr. Leconte. The larva had recently undergone moulting, some portions of the old skin being still adherent about the head. The peculiarity no-

ticed in this connection consisted in the fact that the structure of the mandibles after moulting was very different from that before it. The larva has been described and figured since in the *Trans. Amer. Entom. Soc.*, Vol. v [see Rec., No. 324].

§ 19. PROTRUSILE ABDOMINAL APPENDAGES OF MOTHS. MR. B. P. MANN read extracts from a letter of Fritz Müller to Chas. Darwin, published in *NATURE*, vol. x, No. 241, p. 102 (June 11, 1874), respecting the presence and character of abdominal appendages in several Glaucopid moths, similar to those described by Mr. H. K. Morrison in *PSYCHE*, vol. i, p. 21-22, as found in the male *Leucaretia aeraea*. (Febr. 12, 1875.)

MR. H. K. MORRISON showed a specimen of *Chamyris cerintha*, which has an appendage, whose use is problematical, at the base of the abdomen beneath. (April 9, 1875.)

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The date of publication, here given in brackets [], marks the time at which the work was received by the Editor, unless an earlier date of publication is known to him. An asterisk * before a title is the Recorder's certificate of accuracy of quotation. Corrections of errors and notices of omissions are solicited. — B. PICKMAN MANN.

The **Bihang till Kongl. Svenska Vetenskaps-Akademiens Handlingar**, Band 2, contains Nos. 749 and 750.

* 749. C. STÅL. Recherches sur le système des Blattaires. No. 13. pg. 18. [April, 1874.]

Attempt to make a more natural limitation and a more solid characterization of the tribes and genera in Brunner's system of Blattariae; discussion of the characters used. Describes synoptically four and indicates other "tribes" [with family names]; describes synoptically 36 (*Liosilpha*, *Cyrtilia*, *Molytria*, *Melanozosteria*, *Zonioploca*, *Cosmozosteria*, *Eurycotis*, *Homalosilpha*, *Phoetalia*, *Byrsotria*, *Blaptica* = 11 new) and mentions other genera.

* 750. C. STÅL. Recherches sur le système des Phasmidés. No. 17. pg. 19. [March, 1875.]

A rational system of Phasmidæ has been lacking hitherto; an entirely new grouping, supposed to be natural, is proposed here. Describes synoptically 37 (*Clonaria*, *Echetus*, *Bostra*, *Clonistria*, *Phryganistria*, *Arrhidacus*, *Hoplocloonia*, *Acanthocloonia*, *Orobia*, *Donusa* = 10 new) genera. Describes *Clonistria Bartholomæa* from St. Bartholomew Island, West Indies = 1 N. A. n. sp.